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NOVEMBER 2, 1964

COMMUNICABLE DISEASE CENTER

INFLUENZA

SURVEILLANCE

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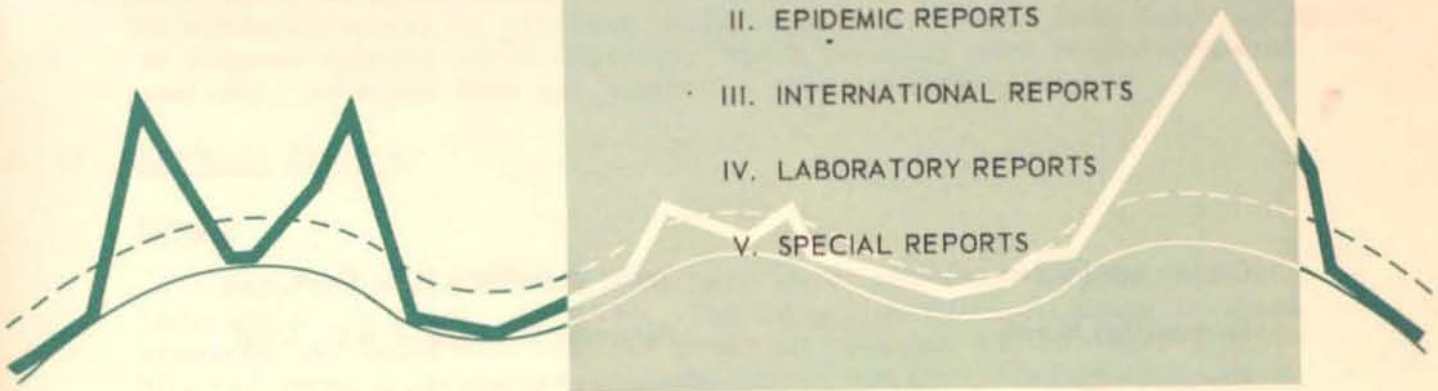

U. S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE
PUBLIC HEALTH SERVICE

PREFACE

Summarized in this report is information received from State Health Departments, university investigators, virology laboratories and other pertinent sources, domestic and foreign. Much of the information is preliminary. It is intended primarily for the use of those with responsibility for disease control activities. Anyone desiring to quote this report should contact the original investigator for confirmation and interpretation.

Contributions to the Surveillance Report are most welcome. Please address to: Chief, Influenza Surveillance Unit, Communicable Disease Center, Atlanta, Georgia 30333.

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I. Summary

United States: No outbreaks of influenza documented by virus isolation have been reported in the continental U.S. since publication of the last Influenza Surveillance Report (No. 79, April 30, 1964). However, scattered clusters of febrile respiratory illness occurring in parts of Oregon have involved individuals, at least some of whom show serological evidence of A_2 influenza infection.

A_2 virus has recently been isolated from a case of characteristic clinical influenza representing part of a relatively widespread but low level outbreak in Puerto Rico. Serological evidence of infection has been demonstrated among a number of such cases from various parts of the Island. The virus isolate now being characterized in detail is readily identified using antisera against A_2/Japan/170/1962 widely employed in virus serological laboratories.

Preliminary communications from Hawaii describe an outbreak of respiratory illness on Oahu Island during the past month which appears serologically to be caused by influenza virus Type B, seemingly more related to the 1959 Maryland strain than to a 1962 Taiwan isolate.

The occurrence of these unseasonal outbreaks of influenza is presently not expected to alter the limited prospects for major outbreaks on the continent this winter. Careful surveillance in the coming weeks will be of importance to document the anticipated pattern.

International: Isolated outbreaks of influenza attributable to A_2 strains have occurred sporadically in various parts of the world since mid-spring. No epidemiological or clinical variations have emerged from these epidemics to suggest altered virus capacity. Virus strains have varied somewhat, but available evidence does not support a major antigenic shift.

II. Epidemic Reports

Oregon

Reported cases of influenza have shown a steady although limited increase since August 22, 1964. The number of reported cases has been somewhat increased over similar weeks in 1963 but has not exceeded the 1957-63 median. Acute convalescent sera from five clinically suspect cases of influenza showed significant antibody rises to A_2 influenza virus. Attempts to isolate influenza virus from clinically suspect cases are continuing.

Although the western part of Oregon appears to be widely involved, this is most likely a reflection of population density.

(Reported by Dr. Grant Skinner, Director, VD and Epidemiology Section Oregon State Board of Health.)

Hawaii

First recognized by sudden increases in absenteeism among students of various elementary and high schools on Oahu Island beginning in late September, there has been evidence of relatively widespread, mild febrile respiratory disease in the civilian population on the Island. It would appear that individuals of all ages are reporting similar illnesses although the most prominent indicator of the outbreak has been peaks of school absenteeism up to 25% in some areas.

The Hawaii State Department of Health Laboratory is continuing efforts to isolate the etiological agent but has shown clear serological evidence of Type B influenza infection in three cases from whom acute and convalescent serum specimens were obtained. Initial screening of these sera using hemagglutination inhibition procedures with the B/Maryland/1/59 prototype and a more recent Taiwan strain (B/Taiwan/2/62) shows that the agent responsible for the Hawaiian cases is more closely related to the former antigen.

Utilizing a system of "listening-post schools," a review of the outbreak's impact on school age individuals from various geographical areas on Oahu is under way and will be included in a future Influenza Surveillance Report.

At the present time, it would appear that the number of cases is diminishing; there has been no clear evidence that other islands of the Hawaiian group are involved.

(Reported by Dr. W. F. Lyons, Chief, Epidemiology Branch, Hawaii Department of Health.)

Puerto Rico

During mid-August, an increase in the number of recognized influenza-like illnesses was reported from various parts of Puerto Rico, much of the increase originating earliest in the San Juan area. The disease was generally mild but characteristic of the classical influenza syndrome in many instances.

Weekly reports of influenza cases have been available from the Island for some years and are of interest for comparative review although undoubtedly not representing more than a fraction of the actual number. During much of September and October, weekly numbers of reported cases in 1964 have been approximately 12 times that in corresponding weeks of 1963. From August 2, 1964 through October 24, 10,194 cases have been reported, compared to 748 for the comparable period in 1963. The peak of the outbreak appears to have occurred in mid-October.

In a San Juan penitentiary where a cluster of febrile respiratory illnesses occurred in September, 13 acute-convalescent phase serum pairs were collected for serological testing in the Puerto Rico Institute of Public Laboratories. Using antigen strains of 1957 A_2 and 1959 B, initial hemagglutination inhibition tests were interpreted as showing an A_2 strain probably to have been involved in the outbreak while an unexplained, perhaps non-specific titer rise to the B antigen was also apparent. The serum specimens are currently being retested at C.D.C. laboratories.

Physicians from C.D.C. joined local health personnel in late September and October for reviewing the outbreak and collecting specimens appropriate for virus isolation attempts. It appeared then that little impact of the disease was being felt in school absenteeism or reflected in the more prominent indices of major respiratory disease epidemics.

As the outbreak had spread southward by mid-September from its earlier San Juan focus toward Ponce, there was no evidence of a more substantial amount of disease or a variation in its epidemiological character. Age distribution of cases approximated from available data suggested that the predominant amount of illness was occurring in older children and young adults, although younger children and the elderly portion of the population also were affected.

Clinical specimens were collected from acutely ill patients in several parts of the Island and were returned to C.D.C. where an A_2 strain has recently been identified from one throat swab. Homologous antibodies to this isolate are present in serum prepared against A_2/Japan/170/62 but further characterization of the present strain is under way. (See Laboratory Section).

Additional evaluation of the outbreak is under way.

(Reported by Dr. Rafael Timothee, Chief, Division of Preventive Medical Services and Dr. Jose Villamil, Institute of Public Laboratories, Puerto Rico.)

III. International Reports

Sporadic and isolated outbreaks of A_2 influenza have appeared in various parts of the world since mid-spring. No overall pattern

of spread or evidence of significant antigenic variation in isolated strains are evident from reports received in the United States.

Brief summaries of some of the identified epidemics follow:

Europe

Hungary

An outbreak of mild influenza-like illness began April 28 in a Budapest factory in which 40 out of a group of 100 workers became ill within three days. Influenza A_2 virus was isolated from involved cases.

Norway

In Norway, outbreaks of A_2 influenza occurred in the northern counties of Nordland, Trams, and Finnmarck during March, April, and May, and in the south mainly among men in military recruit camps.

Switzerland

A small A_2 influenza outbreak occurred in Basel at the end of April.

Finland

Serological studies were carried out during an outbreak of respiratory illness from late May through June in five military units in southern Finland. CF tests on 15 patients showed a significant rise to the A_2 strain.

America

Canada

Serologic evidence of infection with A_2 influenza virus was obtained in scattered outbreaks of influenza-like illness reported in Alberta during March and April. In addition, Virus C was isolated from four influenza cases in one family occurring in early March, at Regina, Saskatchewan.

Oceania

Australia

Mild outbreaks of influenza were reported from the States of South Australia, Tasmania, Victoria, and Queensland. The first cases occurred in early May and strains of A_2 virus have been isolated from clinical specimens collected in South Australia, Tasmania, and Victoria. They are reported to resemble A_2/North Carolina/1/63 more clearly than A_2/Asia/57.

New Zealand

During the early part of June 1964 epidemic influenza spread rapidly through New Zealand, causing high attack rates and moderately severe symptoms, often chiefly lower respiratory. Newspaper accounts reported an occurrence of 20% in some schools, although confirmation of this substantial attack rate could not be obtained.

Influenza Virus A_2 was isolated from several patients; the strains appearing to be antigenically related to A_2 /England/12/64.

Pathology reports from several associated deaths revealed influenzal pneumonia with secondary staphylococcal infection.

Asia

Taiwan

A respiratory illness of epidemic proportion was noted among American and Chinese populations in Taiwan during July. It was originally thought to be influenza, but isolation attempts and serological studies were negative. Subsequent investigations demonstrated the Eaton agent, Mycoplasma pneumoniae to have been the cause.

IV. Laboratory Report

Roslyn Q. Robinson, Ph.D.
Chief, Respirovirus Unit and
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Specimens collected during the outbreak of influenza in Puerto Rico, discussed earlier in this report, have been processed at this center. Results of virus isolation studies and sero-diagnoses clearly indicate the etiology to be A_2 influenza virus. Of 18 paired sera collected, 12 showed a fourfold or greater increase in antibody titer measurable in the hemagglutination inhibition test using the A_2/Japan/170/62 virus as antigen. None of the 18 paired sera showed a significant increase in antibody titer measurable with the B/Maryland/1/59 antigen. Throat swabs were collected from 11 cases for virus isolation attempts. Three cases yielded a virus, one of which has been identified as an A_2 influenza virus. This virus has grown poorly in embryonated eggs and for this reason only preliminary results of antigenic analysis are available at the present time. The A_2/Puerto Rico/1/64 virus reacts with specific ferret antisera prepared with the A_2/Japan/305/57, A_2/Japan/170/62 and A_2/North Carolina/1/63 strains, at titers thirty-two, eight, and twofold lower than the respective homologous titers. These preliminary results would indicate that the virus isolated during the outbreak in Puerto Rico is an A_2 virus, most closely related to the A_2/North Carolina/1/63 strain, and significantly different from the prototype A_2/Japan/305/57 virus. However, this interpretation must be considered provisional until antiserum is prepared with the A_2/Puerto Rico/1/64 virus and the new virus is shown to be fully reactive with specific antibody.

Results of limited sero-diagnostic tests using both the A_2/Japan/170/62 and A_2/Puerto Rico/1/64 antigens tend to support the interpretation that the two viruses are antigenically somewhat different. In cases without antibody in the acute serum, the increase in antibody was small and directed only against the A_2/Puerto Rico/1/64 virus.

During the outbreak of A_2 influenza in the United States in 1963, it was observed that many positive serologic diagnoses could be made by complement fixation tests but not by hemagglutination inhibition tests using the A_2/Japan/305/57 antigen. Diagnosis by hemagglutination inhibition test using the currently prevalent virus as antigen

(A_2/North Carolina/1/63), was readily achieved. Results of hemagglutination inhibition tests using sera collected from cases in 1963 tend to support the interpretation that the new A_2/Puerto Rico/1/64 virus is closely related to the A /North Carolina/1/63 strain. Results of these tests are shown in Table 1.

Table 1

Serodiagnoses of 1963 Influenza Cases by Complement Fixation and Hemagglutination Inhibition Tests

Case	No.	CF* Titer	Hemagglutination Inhibiting Titers Measured With		
			A Japan/305/57	A /N.C./1/63	A /PR/1/64
1	A**	0	0	0	0
	C**	> 256	0	20	20
2	A	8	0	0	0
	C	256	0	80	40
3	A	< 8	0	0	0
	C	64	0	40	20
4	A	16	0	0	0
	C	> 256	0	80	80
5	A	< 8	0	0	0
	C	32	0	20	10
6	A	< 8	0	0	0
	C	128	0	40	40
7	A	< 8	0	0	0
	C	32	0	20	10
8	A	< 8	0	0	0
	C	32	0	10	10

* Complement fixation

** (A) Acute (C) Convalescent

V. Special Reports

Appendix I

1964-65 Recommendations for Influenza Immunization and Control in the Civilian Population

Advisory Committee on Immunization Practice

1. Expected Occurrence of Influenza During 1964-65

a. Influenza A2

Widespread outbreaks of influenza A2 occurred in 1962-63 in most areas of the United States except for the West Coast. During 1963-64, influenza A2 was widely prevalent along the West Coast; limited outbreaks occurred also in Southern Minnesota. Although influenza A commonly occurs in two to three year cycles, it would seem, in the face of the extensive 1962-1963 outbreak and the West Coast involvement in 1963-64, that a major outbreak would be unlikely this year. As in other inter-epidemic years, however, focal outbreaks might be anticipated.

b. Influenza B

A nation-wide epidemic of influenza B was last observed in the United States during 1961-62. During 1963-64, influenza B in epidemic proportions was observed in Japan. The strain involved was related to previous strains isolated in the United States and was unrelated to the sharply modified B strain recovered in Taiwan in 1962 during an institutional outbreak. This strain has not since been isolated. Possibilities that the Japanese influenza B epidemics might herald outbreaks on the West Coast during the coming year or that the Taiwan B strain might reappear cannot be completely dismissed. It seems unlikely, however, in view of the relatively rare occurrence of major epidemics of influenza B, that the United States would experience more than scattered, limited outbreaks of influenza B during 1964-65.

2. Vaccine Efficacy

Since its introduction, influenza vaccine has been shown, in repeated control trials, to confer substantial protection (60 to 80 percent) against the epidemic disease. Notable exceptions were

observed when major shifts occurred in the antigenic composition of the virus (1947 and 1957) and more recently, when more gradual antigenic changes within the A_2 family of viruses have evolved, as occurred between 1957 and 1962. It would appear that, in general, the greater the similarity between viruses incorporated in the vaccine and naturally occurring strains, the better the degree of protection. Since influenza viruses are constantly undergoing antigenic change, the incorporation of recent isolates into the vaccine has merit. The incorporation of recent A_2 and B isolates in the 1963-64 vaccine and the increase in their concentration during 1964-65 should result in a vaccine capable of conferring substantial protection in 1964-65. There has yet, however, been no opportunity to evaluate the newly constituted vaccine under conditions of a natural challenge.

That influenza vaccine prevents mortality from influenza, particularly among the aged and chronically ill, is based upon inference. It is presumed that vaccine protection demonstrated in studies among younger persons is similar among the aged and chronically ill, the group at particular risk of death should they acquire the disease. It is further assumed that such protection against clinical disease serves to protect them also against mortality associated with epidemic influenza. No studies, however, have yet been reported which measure the efficacy of the vaccine in prevention of influenza-associated mortality.

3. High Risk Groups

Immunization should be considered and generally recommended for persons in groups who experience high mortality from epidemic influenza. Such groups include:

a) Persons at all ages who suffer from chronic debilitating disease, e.g., chronic cardiovascular, pulmonary, renal or metabolic disorders; in particular:

   1. Patients with rheumatic heart disease, especially those with mitral stenosis.

   2. Patients with other cardiovascular disorders such as arteriosclerotic heart disease and hypertension, especially those with evidence of frank or incipient cardiac insufficiency.

   3. Patients with chronic bronchopulmonary disease, for example, chronic asthma, chronic bronchitis, bronchiectasis, pulmonary fibrosis, pulmonary emphysema, pulmonary tuberculosis.

   4. Patients with diabetes mellitus and Addison's disease.

b) Persons in older age groups. During three successive recent epidemics a moderate increase in mortality has been demonstrated among persons over 45 years and a marked increase among those over 65 years of age.

c) Pregnant women - It is to be noted that some increased mortality was observed among pregnant women during the 1957-58 influenza A_2 epidemic both in this country and abroad. It has not, however, been demonstrated in subsequent years.

4. Time of Vaccination

Vaccination should begin as soon as practicable after September 1 and ideally should be completed by mid-December. In any case a two week delay in the development of antibodies may be expected and it is important, therefore, that immunization be carried out before influenza occurs in the immediate area.

5. Vaccine Composition

Recent isolates of both the A and B strains demonstrate a continuing alteration in antigenic structure. Accordingly, it is noted that more recent strains of both the influenza A_2 and B strains have been added in increased amounts. The antigenic composition of the vaccine for the 1964-65 season is as follows:

Type	Strain	CCA Units per cc.
A	PR8	100
A_1	Ann Arbor 1/57	100
A_2	Japan 170/62	200
B	Maryland 1/59	200
		600

6. Dose and Schedule of Vaccination by Age (for those for whom immunization is recommended).

a) Primary Series - Those not vaccinated since July 1963 should receive a subcutaneous dose of polyvalent vaccine followed by a second dose about two months later. It is to be pointed out, however, that even a single dose can afford significant protection; a second dose given as early as two weeks following the first will enhance the protection.

b) Revaccination - Those revaccinated since July 1963 need receive but a single dose of the vaccine.

c) Dosage

1. Adults and children over 12 - 1.0 ml. (600 CCA units)

2. Children 6 to 12 years* - 0.5 ml. (300 CCA units)

3. Children 3 months to 5 years*
Primary series should consist of 0.1-0.2 ml. (60-120 CCA units) of vaccine given subcutaneously on two occasions separated by one to two weeks followed by a third dose of 0.1-0.2 ml. about two months later. For those previously vaccinated, a single booster of 0.1-0.2 ml. is recommended.

*Since febrile reactions in this age group are common following influenza vaccination, an antipyretic may be indicated.

d) Contraindication - Since the vaccine viruses are produced in eggs, the vaccine should not be administered to those who are hypersensitive to eggs or egg products.

7. Future Studies

Constant vigilance, nationally and internationally, is important if early detection of strains showing a marked antigenic shift is to be accomplished. Should such strains be detected, it is important that some isolations be made in systems compatible with subsequent vaccine production. Such systems would include cercopithecus monkey kidney tissue culture or eggs.

Controlled field studies of vaccine efficacy among elderly persons and other high risk groups are of vital importance. As previously noted, evidence that influenza-associated mortality is prevented among such groups by vaccination has not been directly documented. Since use of the vaccine is not without costs, the protective value of the procedure demands further documentation.

Key to all disease surveillance activities are those in each State who serve the function as State epidemiologists. Responsible for the collection, intrepretation and transmission of data and epidemiological information from their individual States, the State epidemiologists perform a most vital role. Their major contributions to the evolution of this report are gratefully acknowledged.

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DEPARTMENT OF
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Public Health Service Communicable Disease Center
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February 3, 1964

TO : Readers of Influenza Surveillance Reports

FROM : Surveillance Section, CDC

SUBJECT: Outbreaks of Influenza-like Disease, 1964

Outbreaks of influenza-like disease have recently been reported from communities in northwestern Washington, from nearby areas on Vancouver Island, British Columbia, and from cities in the Orient, notably Taipei. The epidemic in Washington is the first to have been noted in the U.S. this year. Preliminary data on these and other recent outbreaks are given below in order to alert those concerned with influenza surveillance, and to urge their continued close observation of respiratory disease patterns in their respective areas.

Washington State

Outbreaks of acute febrile respiratory disease, clinically compatible with influenza, have been reported from three communities in Skagit County, in northwestern Washington, beginning during the last week in January. The illness has been characterized by fever (reaching 103-104 in severe cases), dry cough, sore throat, myalgia, and eye pain lasting 3-4 days, followed by a period of fatigue and lassitude lasting several more days. A number of cases have required hospitalization and many of these have shown pulmonary infiltrates on chest film. No deaths have been reported. Most severely affected have been the neighboring communities of Sedro Woolley and Mount Vernon where one practitioner has estimated a twenty-fold increase in home and office visits for respiratory disease during the past week. In the nearby town of Concrete, 58 of 200 school children were absent on Friday, January 31, because of a similar illness. Both adults and children appear to be involved. In Whatcom County, just north of Skagit, several health department employees, as well as five school teachers in the county seat of Bellingham, were ill with a flu-like disease on January 31. Other neighboring counties (Snohomish and Thurston) report only scattered cases thus far. Laboratory studies aimed at identifying the etiologic agent in the Skagit County outbreak are currently in progress. Additional epidemiologic studies are also being undertaken by a team from the CDC.

Skagit County lies approximately 65 miles north of Seattle, where no evidence of epidemic activity has been observed as yet. Specifically, absenteeism at 25 "listening post" schools has not risen above normal levels; the Boeing Aircraft Company reports no excessive absenteeism among its employees, and visits at the Student Health Service of the University of Washington have shown no recent increase.

The Skagit County outbreak followed by a brief period a similar epidemic illness on Vancouver Island, British Columbia. The southern end of the island lies due west of Skagit County. (See below for details of Canadian outbreaks.)

(Reported by Ernest A. Ager, M.D., Chief, Division of Epidemiology, State Department of Health, Olympia, Washington, and Richard Gross, M.D., Skagit County Health Officer, Mount Vernon, Washington.)

Canada

Epidemic respiratory disease with symptoms typical of influenza has been reported from the community of Lantzville in central Vancouver Island. Peak incidence occurred in mid-January with an estimated 1,000 cases reported during the week ending January 17. Pneumonitis has complicated many of the cases. One death, in a 14 year old boy, has been reported.

Earlier outbreaks of a similar illness were reported in December from several small villages in the Northwest Territories. The towns of Gjoa Haven, Pelly Bay, and Stence Bay accounted for an estimated 100-150 cases.

(Reported by Dr. E. W. R. Best, Chief, Epidemiology Division, Department of National Health & Welfare, Ottawa, Canada.)

Taiwan

A severe respiratory disease epidemic is currently in progress on Taiwan with most extensive involvement apparently in the city of Taipei. The outbreak reached its peak in mid-January, and now appears to be waning, although an increasing number of cases is now being reported among American residents. Attack rates were estimated as high as 50 percent among children at the height of the epidemic. Of the 300 U.S. Naval personnel attached to the Naval Medical Research Unit No. 2 in Taipei, approximately 100 have contracted the illness thus far. Confirmatory laboratory studies and additional epidemiologic investigations are currently in progress. Dr. Robert Warren, CDC Career Development Officer, has arrived in Taipei to assist in these studies.

(Reported by Capt. Robert Phillips, MC, USN, Officer in Charge, U. S. Naval Medical Research Unit No. 2, Taipei; and Capt. Jack W. Millar, MC, USN, Director, Preventive Medicine Division, Department of the Navy, Washington 25, D.C.)

Thailand

An outbreak of influenza-like disease occurred in Thailand during the period October-December, 1963. Two strains of influenza A_2 virus were isolated at the SEATO Medical Research Laboratory in Bangkok. These

strains were found to be more closely related to A_2/Singapore/1/57 than to A_2/Netherlands/65/63.

(Reported in the Weekly Epidemiological Record of the World Health Organization, 24 January 1964.)

Further information on these and other outbreaks will be reported in later issues of the Influenza Surveillance Report and the Morbidity and Mortality Weekly Report. We will appreciate prompt receipt of all information relating to respiratory disease outbreaks which may come to the attention of recipients of this report. Notifications should be sent to:

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